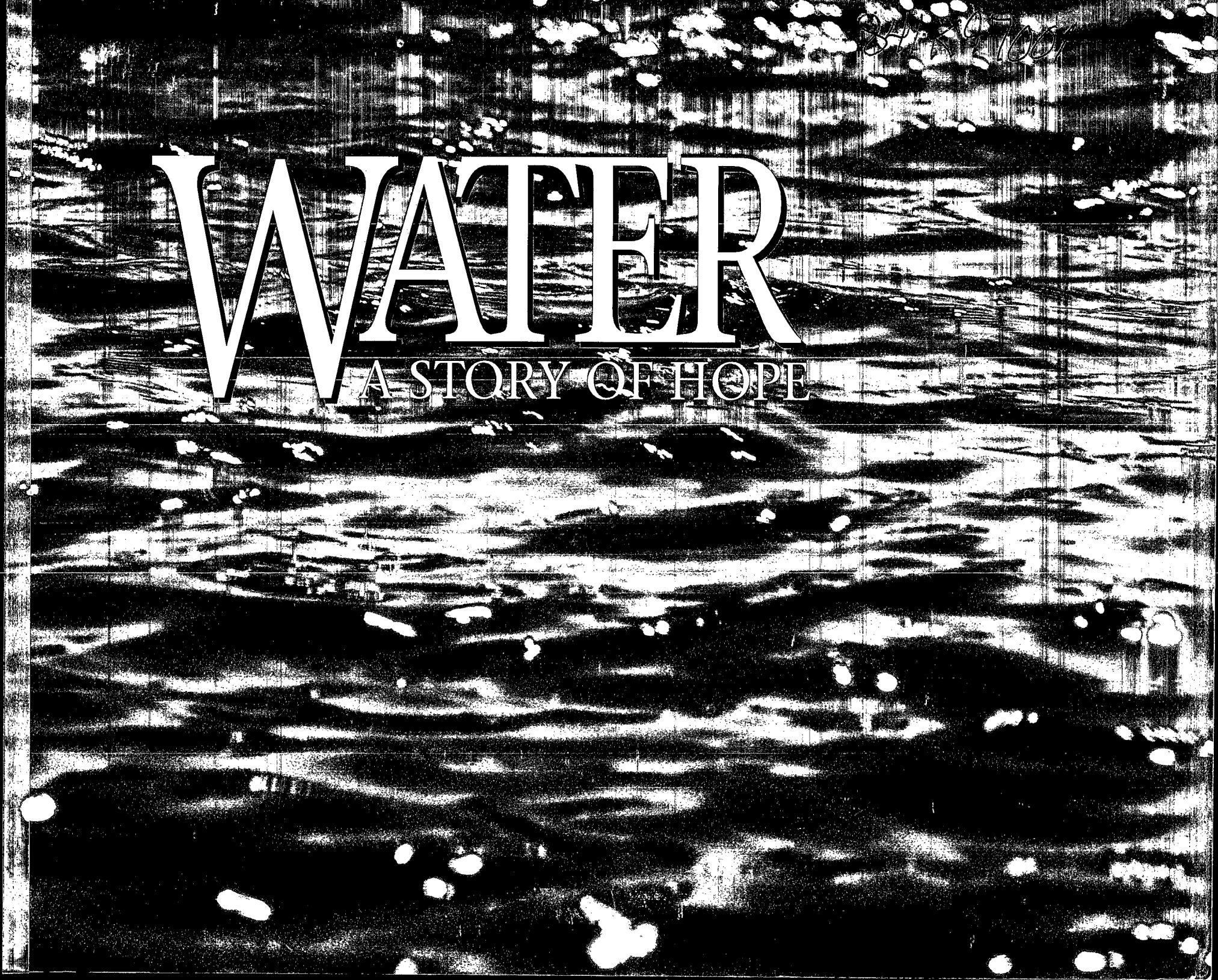

WATER
A STORY OF HOPE

NONPOINT WATER POLLUTION

Taking a New Tack

Letter to the American People

Sailboats tack – alter their course – to maintain forward momentum when they head into the wind. Likewise, we as a society need to take a new tack to build on our present success in cleaning up our nation's waters.

Our current strategy has focused on reducing easily identified sources of pollution – outlets from sewage treatment plants or pipes from factories. Now we need an additional strategy to sustain our progress.

Clean water is achievable if each of us pays attention to our own actions. Day-to-day choices are the key. Pouring leftover paint down a drain may foul a river that supplies water to our faucets. Crankcase oil dripping on a parking lot may wash into a lake where our children swim. Pesticides and soil eroding off a cornfield may contaminate a stream where we fish. The sources of this kind of water pollution are everywhere. Hence the name, "nonpoint source pollution."

Government is tackling nonpoint pollution, but the task is too big to do alone. Imagine policing every backyard, every parking lot, every farm. Stopping nonpoint pollution is everybody's job.

Finding a way to bring this message into every home, farm, and company was the reason the National Geographic Society and The Conservation Fund convened the National Forum on Nonpoint Source Pollution. Leaders of environmental groups, heads of major corporations, state governors, and federal officials came together to take on this challenge.

Federal efforts are not enough. We need to encourage state and local partnerships to implement new solutions. We need to supplement regulatory approaches with educational programs, voluntary initiatives, and economic incentives. The framework for our actions needs to be watersheds rather than political jurisdictions. These and other recommendations outlined here and in a companion report suggest ways that each of us can help prevent nonpoint water pollution.

We believe that Americans are up to this challenge.

Respectfully,

Hon. John Engler
Governor, State of Michigan

Hon. Howard Dean, M.D.
Governor, State of Vermont

Water Is Life

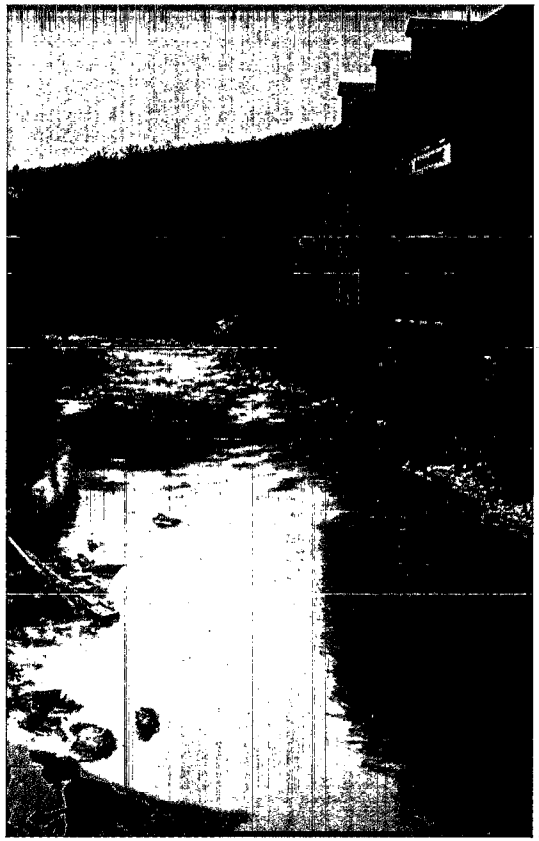
Turn on the faucet. What flows out is life. Deprived of water to drink, a healthy human will die in less than a week. Water is the lifeblood of communities as well. Without a source of clean water, a town will die as surely as an individual.

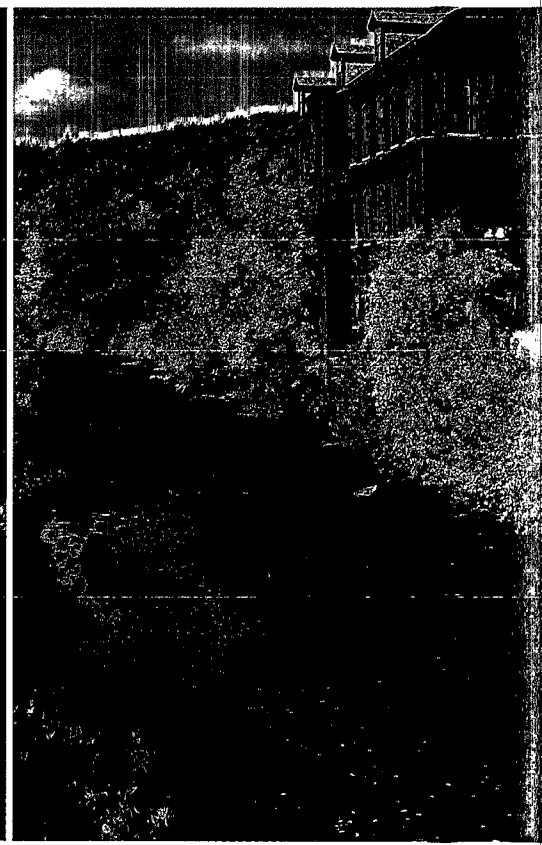
Eight out of 10 Americans believe that safeguarding human health is the most important reason for ensuring a supply of clean water. A majority also wants to protect streams and lakes for the next generation. They recognize that clean water is vital to America's future.

The Good News

The story of water is one of progress. From coast to coast, the nation's rivers and lakes are less polluted than they were in 1972 when the U.S. Congress passed the Clean Water Act. Efforts by all levels of government and the private sector have combined to achieve this success.

Although chinook salmon are still endangered throughout much of their range, they are swimming once again in a creek in Portland, Oregon, past homes and factories. In our nation's capital, great blue herons search for fish beside the Potomac. Ten years ago, the water was too dirty to support the bass that help attract these elegant birds. Truly, these are magnificent accomplishments.





BATES LITTLEHALES (FACING PAGE); NASHUA RIVER WATERSHED ASSOCIATION (LEFT); GEORGE STEINMETZ

PHIL SCHERMEISTER, JIM RICHARDSON ©WESTLIGHT (FACING PAGE)

To Finish the Job

We're tackling the obvious sources of contamination – municipal sewage and industrial discharges. Success with these pollutants that are easy to identify is the reason for the return of the salmon and herons.

So far, so good. But it is not enough. In the most recent inventory of water quality across America, approximately one-third of the rivers and nearly half the lakes assessed by the states remained unhealthy for use as drinking water or unsafe for fishing or swimming.

The reason most often identified is pollution from "nonpoint" sources.

The day-to-day actions of all of us are responsible. Many do-it-yourself auto mechanics, for example, continue to dispose of used motor oil improperly. Every year, they pour perhaps as much as 132 million gallons down storm drains or send it to landfills, where it may leach into groundwater – and possibly into wells that supply drinking water.

Similarly, suburbanites who apply fertilizers and pesticides incorrectly may not realize that runoff from thousands of lawns and gardens can end up in nearby lakes at levels high enough to cause algal blooms and fish kills. The majority of the 1,620 reported incidents of multiple fish kills nationwide in 1992 were attributed to nonpoint pollution.

What Is Nonpoint Water Pollution?

Rainwater and snowmelt wash off the land into streams, lakes, coastal estuaries, and marshes, or seep into groundwater. As this runoff moves across plowed fields, city streets, or suburban backyards, it picks up soil particles, pesticides, fertilizers, animal wastes, and other pollutants such as road salt and crankcase oil.

Originating from numerous small sources, pollution from runoff is widespread and dispersed. To distinguish it from "point source pollution" such as discharge from a factory pipe, contaminated runoff is commonly described as "nonpoint source pollution." Whatever it is called, it is estimated to account for over half of our nation's water pollution.

U.S. GEOLOGICAL SURVEY (ABOVE); DAVID J. CROSS

Where Does It Come From?

Among the places are construction sites and agricultural lands. In cities, nonpoint pollution also comes from streets, landfills, parking lots, lawns, golf courses, and improperly maintained septic systems. Rural sites include abandoned mines and mine tailing sites, overgrazed pastures, animal feedlots, poorly managed tree harvesting sites, and improperly constructed logging roads.

Price of Pollution

The impacts of nonpoint pollution from all sources may rise into the billions of dollars. When fish populations decline because of pollution and habitat loss, the fishing industry takes a heavy hit. The recreational industry hurts when beaches close due to bacteria and other pathogens. One study by the U.S. Department of Agriculture estimated the annual cost of the nation's agricultural runoff alone to be as high as $6 billion.

Add to this untold millions in health care costs caused by waterborne diseases. The loss of wetlands is even harder to value monetarily. But it adds immeasurably to the price paid for nonpoint pollution. Consider the staggering bill to restore a national treasure like the Everglades.

BRUCE DALE

The Population Factor

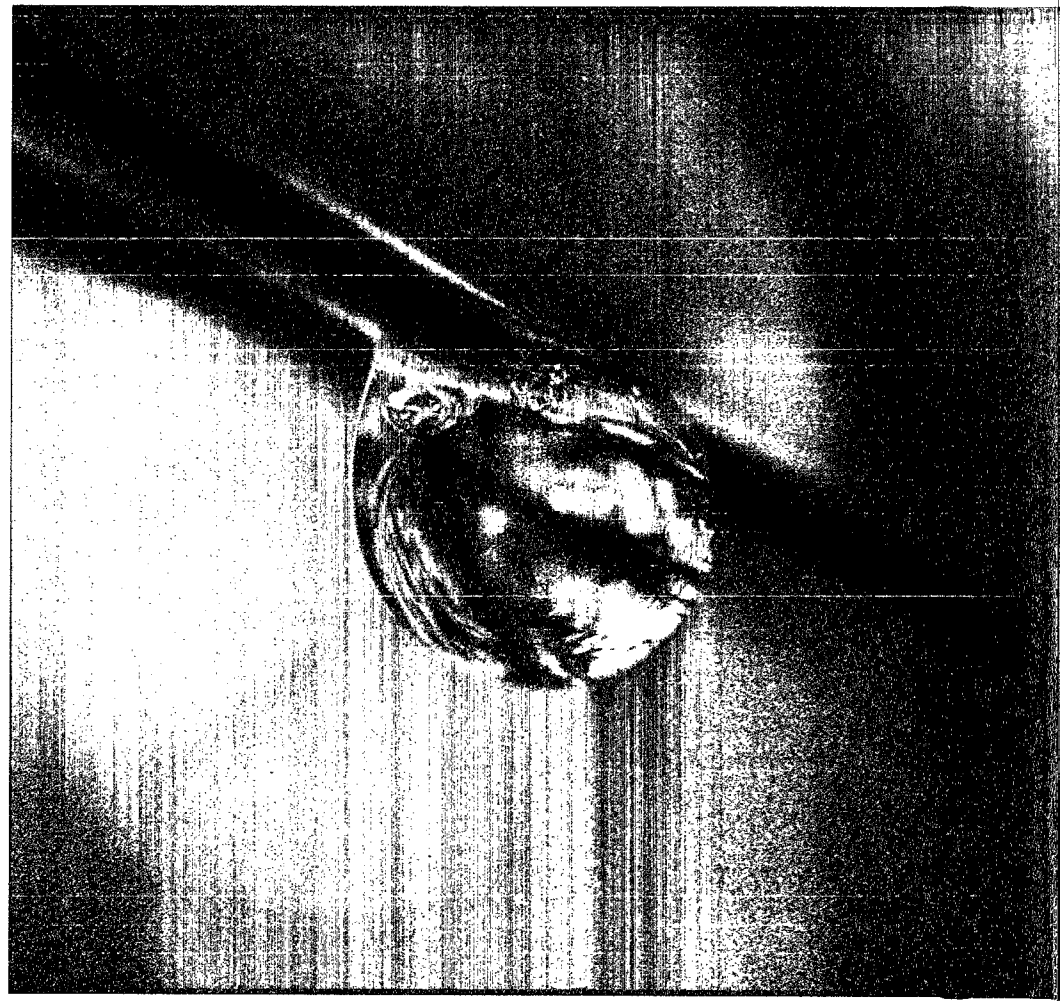
Our nation's population doubled in the past 60 years. As we continue to grow, we will build more houses, more roads, more parking lots. The cost of nonpoint pollution will rise ever higher. Can we afford the costs to our economy and the environment?

BRUCE DALE (LEFT); U.S. ENVIRONMENTAL PROTECTION AGENCY; JODI COBB (BELOW)

A Solution

Raindrops converge as they course down a window. They drop to the ground and join to form a rivulet. This tiny flow in turn makes its way to a brook, which combines with others to form a creek and then a stream. Finally, these separate channels unite to become a river, which merges into another, and another, until they become a mighty river like the Mississippi.

This timeless flow suggests an answer to nonpoint water pollution. If each individual takes a few small steps and then joins with others nearby who are doing the same, their alliance will forge a local stream of partnerships. These in turn will build into broader coalitions as industry, communities, nonprofit organizations, and all levels of government converge into a mighty river of action.



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Shifting Focus

We need to build on past successes by adding new approaches:

Watersheds, rather than political boundaries, are the models provided by nature. They should be used as the framework for action.

•

Preventing pollution is less expensive than cleaning it up.

•

Collaboration, rather than confrontation, will channel our actions where they will do the most good.

•

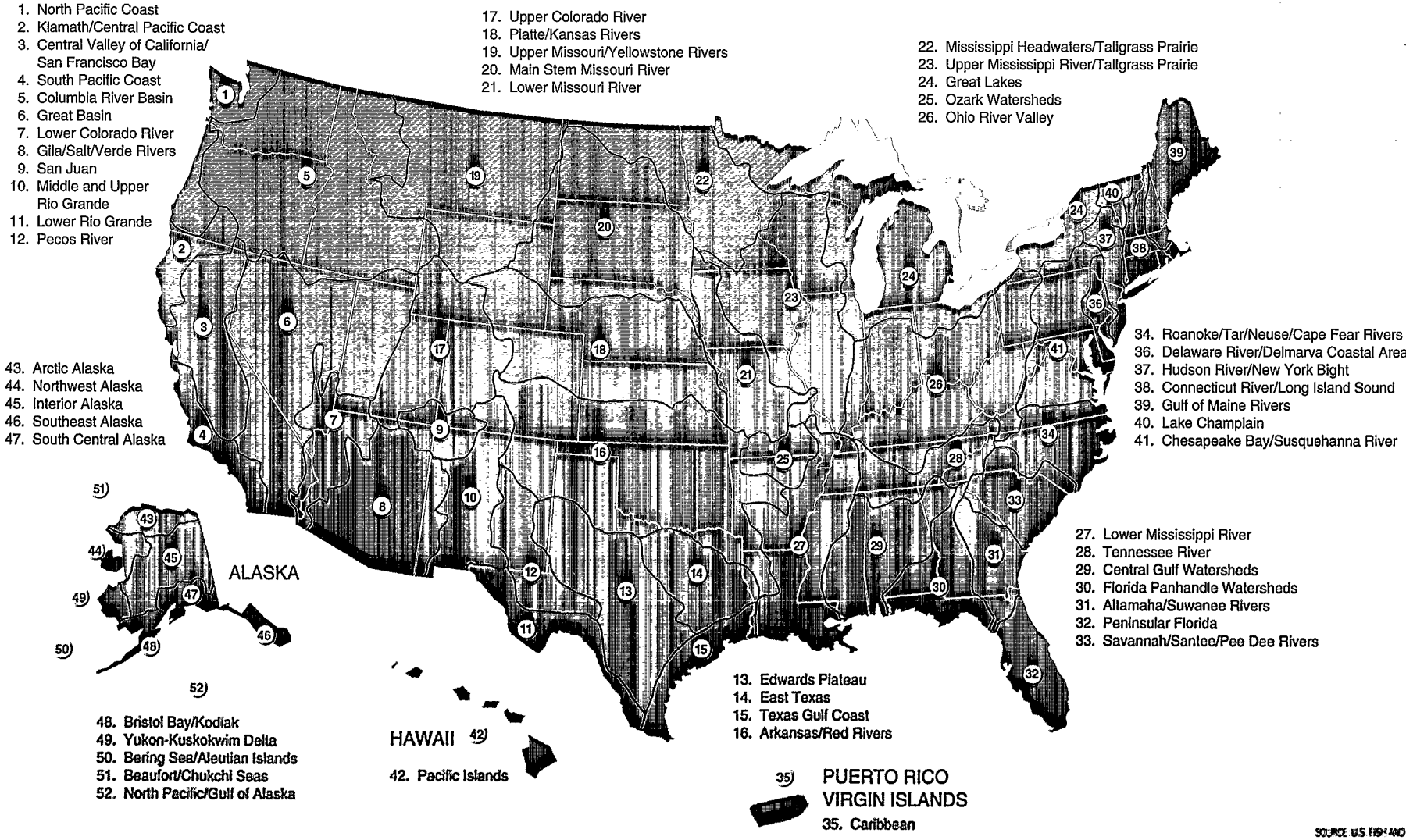
Commitment over the long haul is needed to change behavior.

•

Leadership is needed to make the right partnerships happen.

Watersheds of the United States

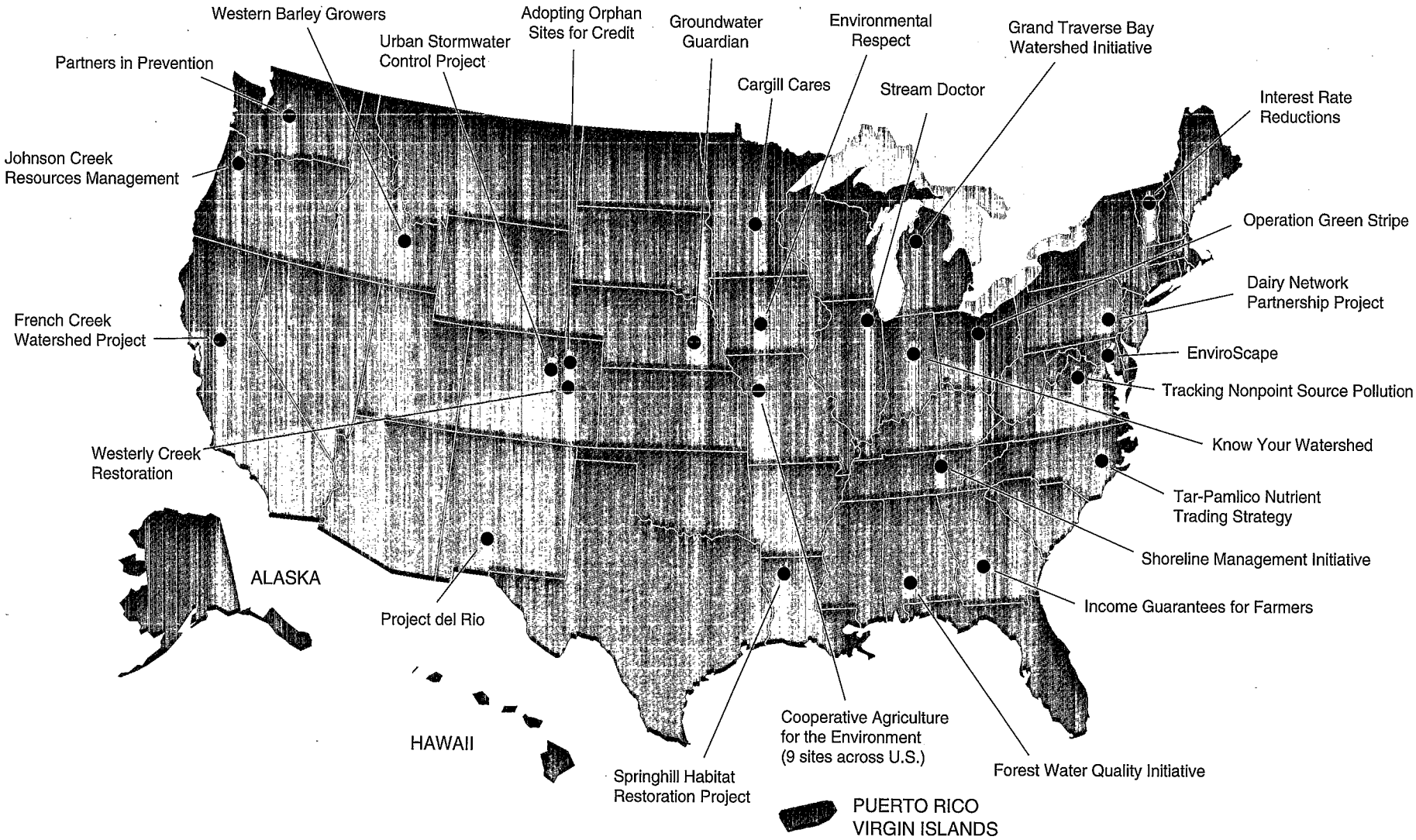
A watershed is land that water flows across – or under – on its way to a stream, river, or lake. The largest of the nation's 52 major watersheds is the mammoth Mississippi, which drains 31 states and two Canadian provinces. The Mississippi watershed, shaped like a huge funnel, stretches from the Rocky Mountains in the West to the Alleghenies in the East and empties into the Gulf of Mexico. The other major watersheds drain to the Pacific and Atlantic Oceans, except in Nevada and Utah, where the waters of the Great Basin recharge groundwater supplies or simply evaporate.



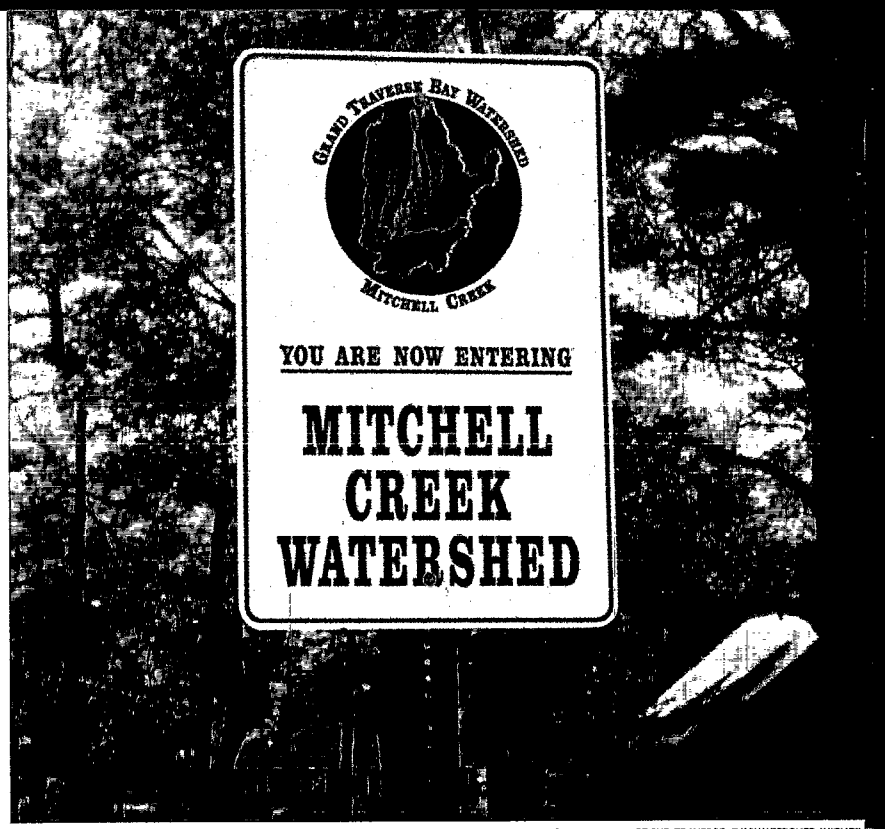
SOURCE: U.S. FISH AND WILDLIFE SERVICE

People with Answers

Americans are resourceful. We are people who come up with answers. Highlighted here are the 25 innovative initiatives launched by the National Forum on Nonpoint Source Pollution. Together, they offer a menu of effective approaches that can be adapted to your watershed. Along with many ongoing projects across the nation, they can help you and your community improve your water.



PATRICIA LANZA



GRAND TRAVERSE BAY WATERSHED INITIATIV

We need to learn about the environmental, health, and financial impacts of nonpoint pollution

Spreading the word is the first step. Only through education can we understand our role in solving the problem. We must engage our children early. Elementary school students in Mexico, Texas, and New Mexico are learning about nonpoint pollution by taking water samples for *Project del Rio,* a program of the Global Rivers Environmental Education Network supported by General Motors. Adults need to become involved too. The Izaak Walton League of America is teaching volunteers to be *Stream Doctors* so they can apply practical techniques for restoring streams in urban and rural areas. These programs can help us understand the damage nonpoint pollution does to waterways and wildlife habitat. Recognizing the price we pay will reinforce the need to implement cost-effective practices to prevent pollution.

We should learn our watershed address

Each of us – children, homeowners, farmers, small business owners, local government officials – should become aware of the watershed where we live. Familiarity with our "watershed address" will help us understand the need to protect water resources. The Conservation Technology Information Center has launched a campaign called *Know Your Watershed.* Through a national coalition of corporations, associations, and federal partners, the campaign is encouraging local, voluntary partnerships in communities across America.

PETER ESSICK

JT&A

Industry can lead the nation

Products can contribute to the nonpoint pollution problem throughout their life cycle – from testing to manufacturing, handling, storage, use, and disposal. Industry can redesign production to minimize these impacts. Companies also can contribute through education. DuPont's ***Environmental Respect*** awards recognize agricultural retailers who sponsor stewardship training for farmers. Cargill is providing its 70,000 employees worldwide with information on water issues with help from The Conservation Fund and the National Geographic Society. Through this ***Cargill Cares*** program, employees are encouraged to participate in community projects such as river cleanups.

We need to share information

We need a clearinghouse for information on nonpoint pollution that can help spread the word about successful programs. The clearinghouse can help us share information about innovative teaching tools such as ***EnviroScape,*** a three-dimensional physical model of a watershed. Developed by JT&A of Washington, D.C., the model is used for interactive, hands-on demonstrations of the connection between land use and water quality.

PHIL SCHOFIEL

Government can encourage voluntary initiatives

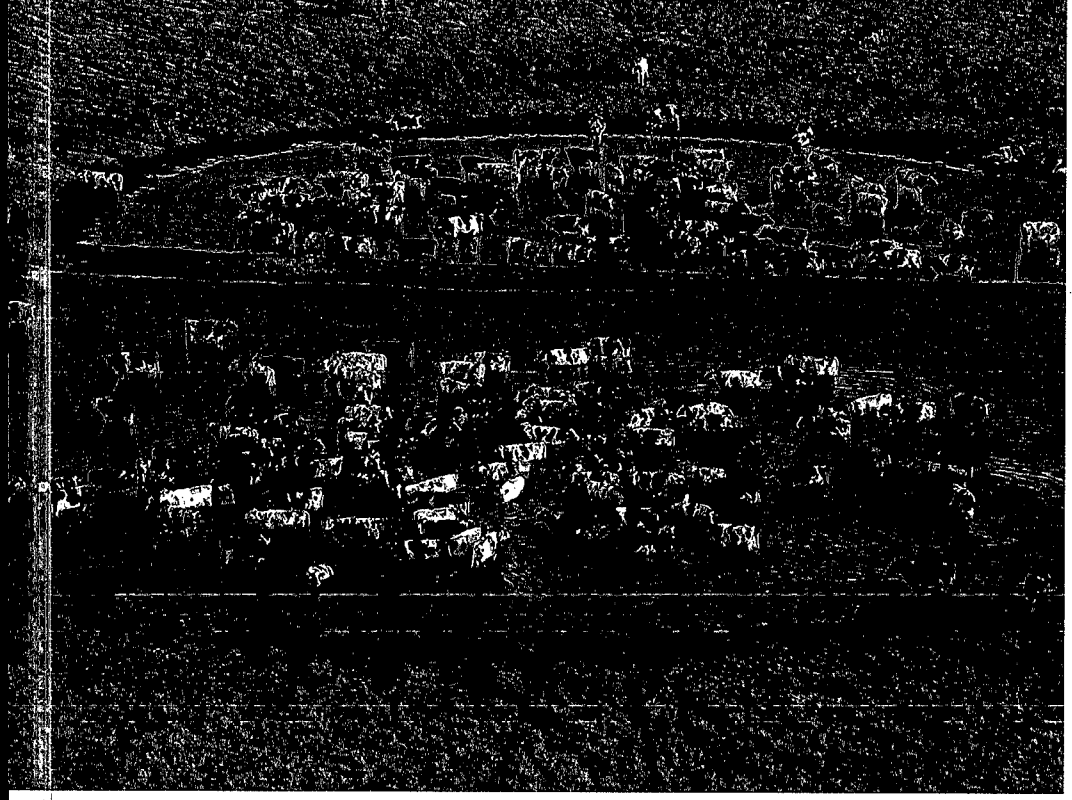
Government agencies can foster water stewardship by forming partnerships with stakeholder groups to encourage voluntary compliance with water quality goals. Under a new *Partners in Prevention* initiative, the U.S. Environmental Protection Agency is working with national associations to foster adoption of stewardship practices that reduce nonpoint pollution. Early partners include pork producers, wheat growers, and dairy farmers.

We should clarify our national water quality mission and identify barriers to improving water quality

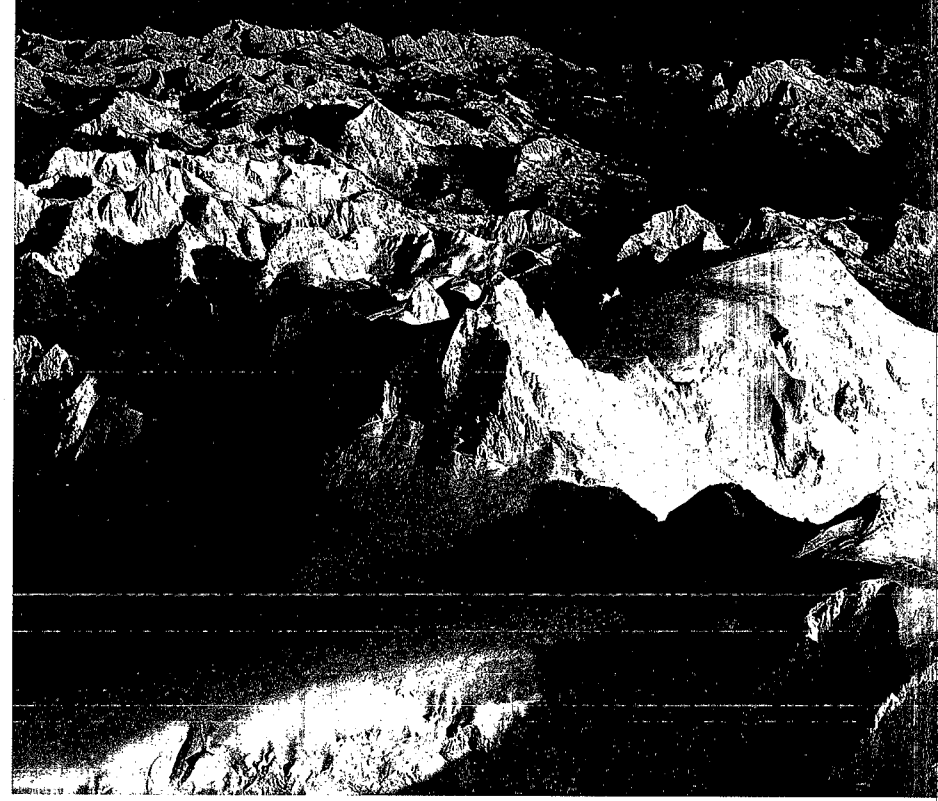
Federal and state water quality programs should be coordinated so that they send clear messages to stakeholders. Existing programs affecting water quality should be examined to identify and resolve any impediments to improving water quality. Agricultural commodity programs, for example, arguably contain requirements that limit farmers' efforts to implement crop rotations and other "best management practices" that can reduce nonpoint pollution.

We should focus policy and budget activities on nonpoint pollution

Federal, state, and local governments can play a leading role in the effort to prevent nonpoint pollution. They can focus resources on educational programs, voluntary initiatives, and economic incentives. Cost sharing, for example, can be an effective way to encourage pollution prevention.



KEVIN FLEMING



SAM ABELL

We need to improve water management on public lands

Federal land management agencies, especially the Bureau of Land Management and the USDA Forest Service, should take steps such as maintaining, restoring, and managing vegetation along streams and lakes. Buffer strips of trees, shrubs, or grass can stabilize streambanks, provide fish and wildlife habitat, and trap sediment and other pollutants before they wash into water bodies.

We should organize water management along watershed boundaries

The water flowing in a stream does not stop at the border of a state or nation, and neither does nonpoint pollution. And yet we continue to manage our nation's water resources along these artificial political boundaries. Watershed management will allow us to deal with nonpoint pollution in a comprehensive, integrated manner. Leadership at the federal and state levels is needed to make this happen. The states within the Chesapeake Bay watershed provide an excellent example.

AMERICAN FARMLAND TRUST

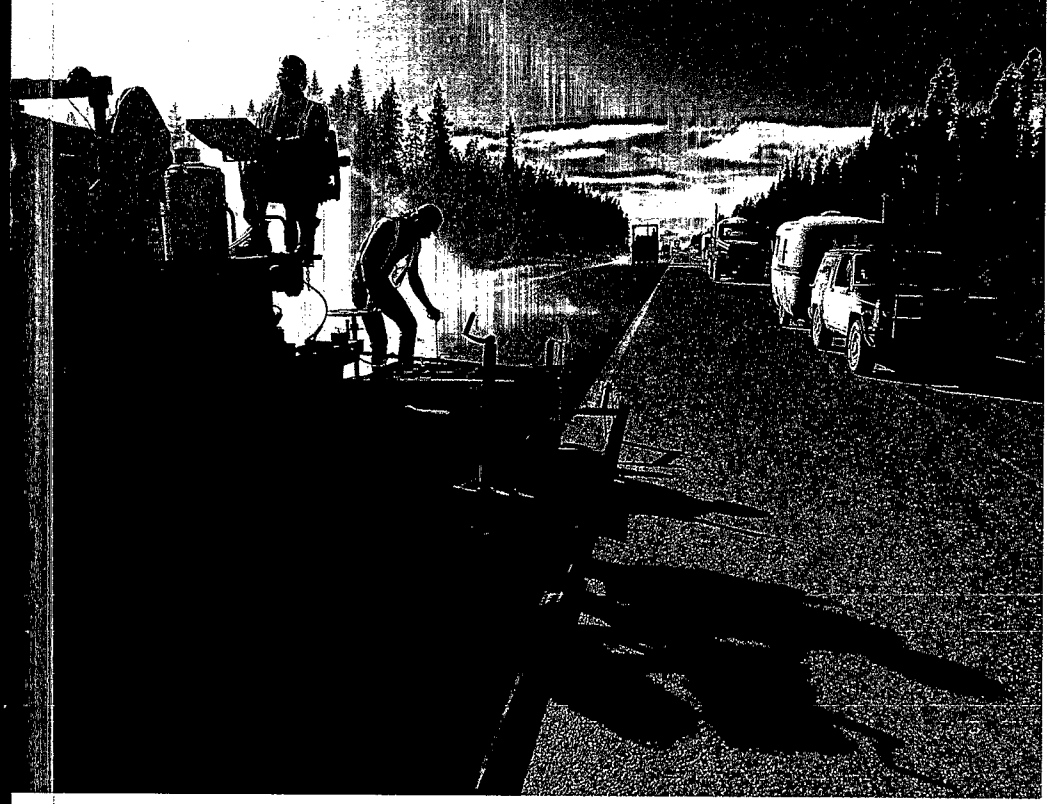
ROBERT W. MADDE

We should ensure that effective programs are targeted where they are most needed

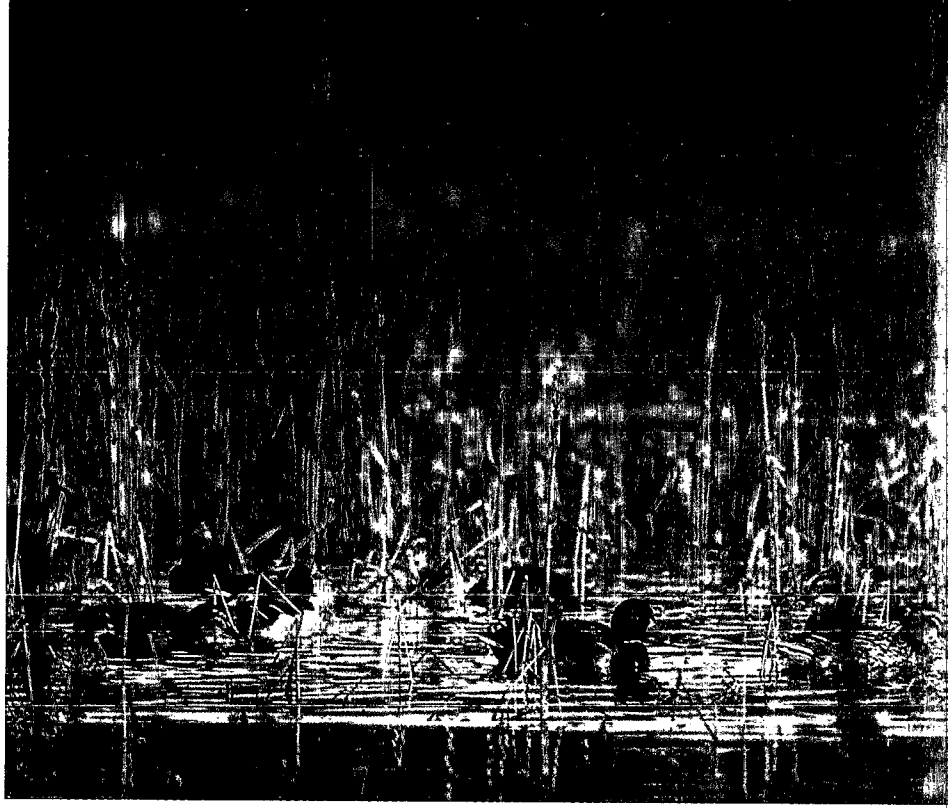
Initiatives such as the Conservation and Wetlands Reserve Programs, which conserve highly erodible farmlands and protect valuable fish and wildlife habitat, should be improved by targeting them to steep slopes, wetlands, and fragile lands along rivers and lakes. States should play a greater role in administering these programs and setting priorities.

All stakeholders must have a voice in community water planning

In planning future development, government and community groups should work together using pollution-prevention tools such as greenways, conservation easements, and sale or transfer of development rights that protect open space. The *Grand Traverse Bay Watershed Initiative* in Michigan is a partnership of public and private organizations working to protect a rapidly urbanizing watershed. In Portland, Oregon, neighborhood associations initiated the *Johnson Creek Resources Management* project and are transforming segments of the creek from a chocolate-colored flow to a clear-running stream that supports chinook and coho salmon. In a regional *Shoreline Management Initiative,* the Tennessee Valley Authority is collaborating with landowners and communities to reduce chemical runoff from lakefront and riverside lawns by using vegetative buffers. At the national level, *Groundwater Guardian,* developed by the Groundwater Foundation, provides technical assistance and recognition to communities that are protecting their groundwater.



RICHARD OLSENIUS



USDA NATURAL RESOURCES CONSERVATION SERVICE

We should evaluate the impacts of our actions on water quality

To protect water quality, all stakeholders, including public agencies, private enterprises, and individuals, should audit their activities in order to improve their pollution-prevention strategies. The American Forest & Paper Association, in cooperation with International Paper and several other major forest products companies, is launching a ***Forest Water Quality Initiative*** in Alabama to educate loggers, landowners, wood dealers, and consulting foresters about logging practices that protect water quality. In California's ***French Creek Watershed Project,*** Fruit Growers Supply Company, Sunkist, and the state government are leading a partnership to improve aquatic habitat by reducing sediment in the creek. The Chesapeake Bay Foundation, The Pew Charitable Trusts, and the Atlantic Dairy Cooperative, in cooperation with the U.S. Environmental Protection Agency, are launching the ***Dairy Network Partnership Project,*** a new way to address nonpoint pollution.

Incentives can encourage land and water stewardship

Public incentives such as local tax credits can finance land-use practices such as greenways that prevent nonpoint pollution. The private sector can likewise offer incentive-based programs such as discounts on insurance premiums to reward pollution prevention. AgriBank and the cooperative farm credit system will launch a pilot test for ***Interest Rate Reductions*** on loans to encourage farmers to adopt prevention practices. The Potash and Phosphate Institute will participate in a pilot study of ***Income Guarantees for Farmers*** who switch to prevention techniques. Coors Brewing Company is launching its ***Western Barley Growers Project*** to increase awareness of water resources and honor voluntary stewardship among farmers who contract to supply the company with barley. Future Farmers of America chapters are recruiting farmers to restore vegetative buffers along streams under ***Operation Green Stripe,*** sponsored by Monsanto.

REYNOLDS ALUMINUM RECYCLING COMPANY

IZAAK WALTON LEAGUE OF AMERICA SAVE OUR STREAMS PROGRA

Entrepreneurs can find new solutions

Today's waste is tomorrow's profit. The success of paper, plastic, glass, and aluminum recycling shows the way. We need to find new ways to handle animal manure, yard wastes, and other sources of nonpoint pollution. A case in point is an electricity generating facility in Texas that is fueled by dried manure from feedlots.

We need innovative approaches

We should explore creative solutions such as marketable discharge rights and limited liability relief for entities that voluntarily remediate abandoned sources of nonpoint pollution. Coors Brewing Company is spearheading *Adopting Orphan Sites for Credit,* a program to reward companies that voluntarily clean up "orphan sites" of nonpoint pollution, such as abandoned mines. An association of communities in the Tar-Pamlico watershed in North Carolina is testing another mechanism – trading point and nonpoint sources to improve water quality. The *Tar-Pamlico Nutrient Trading Strategy* already has reduced the nutrients discharged into the estuary by almost 30 percent. Farmer-owned cooperatives – including Farmland Industries, GROWMARK, Cenex/Land O' Lakes Agronomy, Agway, American Crystal Sugar, Sunkist Growers, Countrymark Cooperative, Southern States Cooperative, CF Industries, and Ocean Spray Cranberries – are sponsoring *Cooperative Agriculture for the Environment,* a network of demonstration projects about innovative ways cooperatives can help their farmer-members implement best management practices.

U.S. GEOLOGICAL SURVEY

USDA NATURAL RESOURCES CONSERVATION SERVICE

We need better data

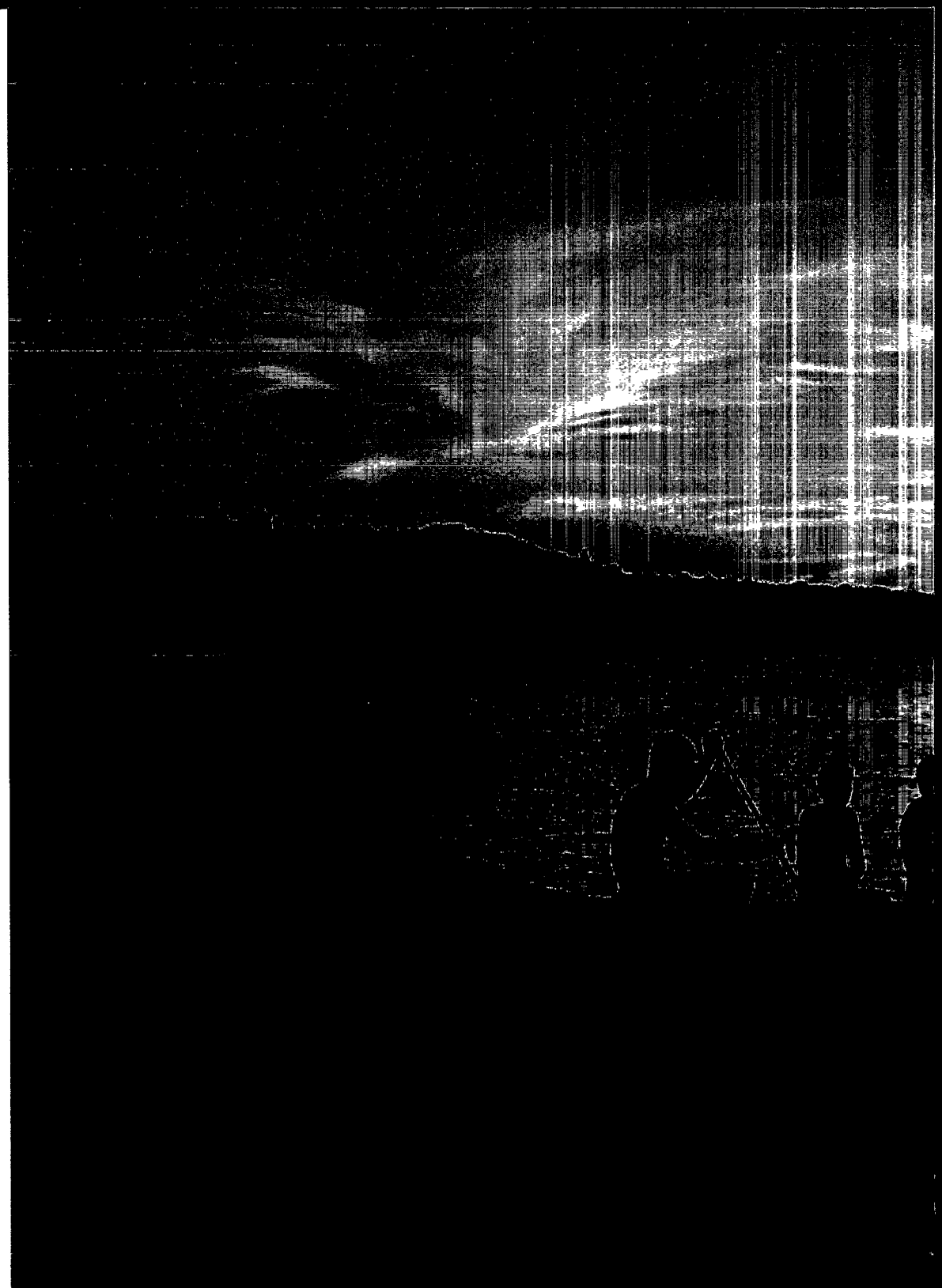
Scientific knowledge of the origins, extent, and effects of water pollution is still far from comprehensive. Enough is known to warrant moving ahead with positive measures, but continued research is essential. In particular, improved tracking of nonpoint pollution will help states and communities identify the most impaired or threatened watersheds. Better monitoring also will help locate significant sources of nonpoint pollution within those watersheds and determine baseline conditions. Under ***Tracking Nonpoint Source Pollution,*** the U.S. Environmental Protection Agency and U.S. Geological Survey are collaborating on a pilot program to coordinate existing federal, state, and local monitoring programs.

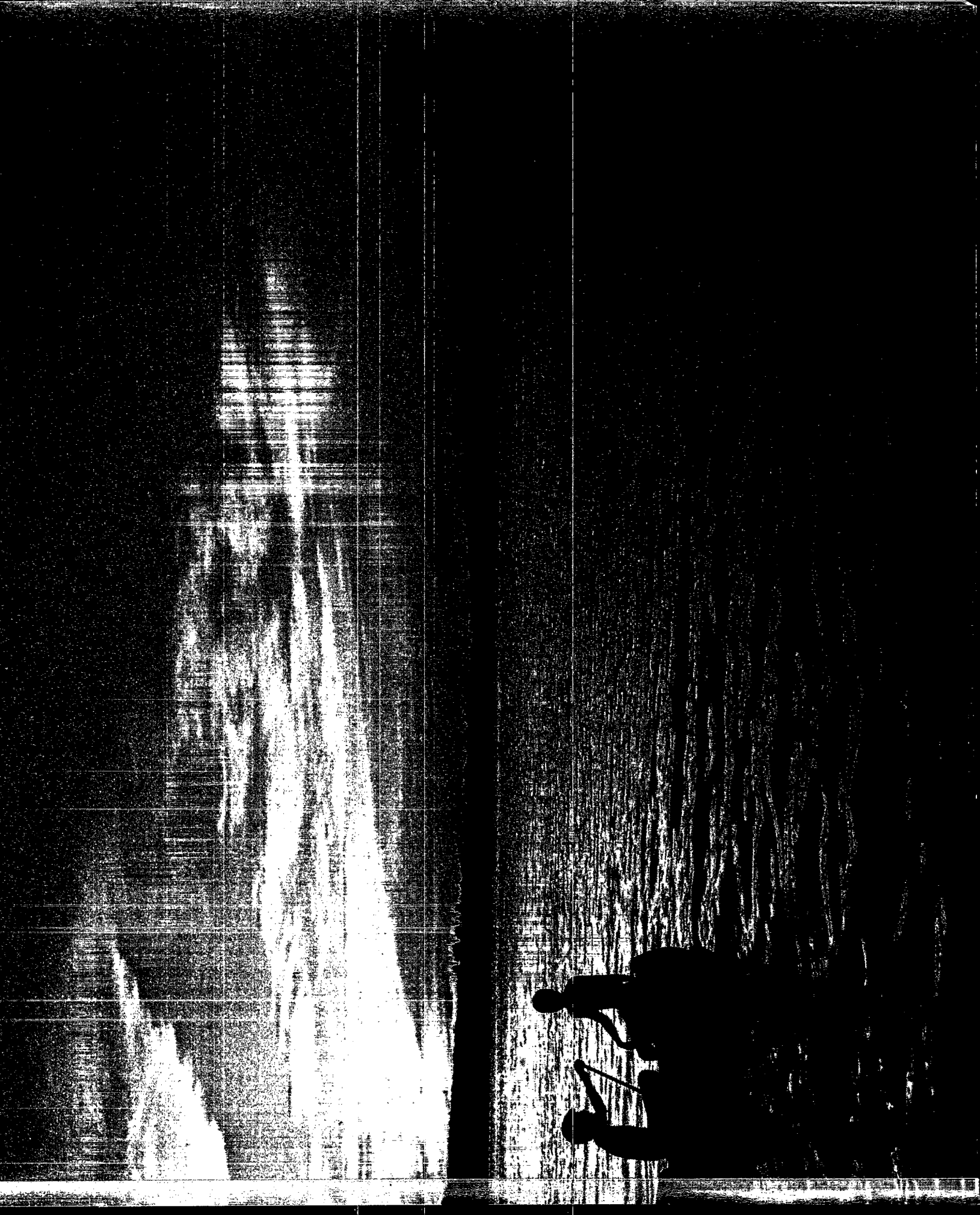
We need new technologies

Government, industry, and nonprofits should work together to research and demonstrate new technologies such as precision farming and riparian restoration. The Land and Water Fund of the Rockies in Boulder, Colorado, in its ***Urban Stormwater Control Project,*** is constructing a "closed-loop" landscape that will retain stormwater on-site rather than allowing it to flow directly to watercourses. In the ***Westerly Creek Restoration,*** the cities of Denver and Aurora and the Stapleton Redevelopment Foundation are restoring a badly degraded urban waterway to an ecologically healthy system. International Paper and The Conservation Fund are collaborating on the ***Springhill Habitat Restoration Project*** to construct wetlands to improve water quality in a Louisiana watershed that was once the site of a papermill and other facilities.

A Vision

Our generation will leave a powerful legacy if we leave water that is cleaner than the water we were given. Our gift will be chinook salmon and great blue herons. Most of all, we will have demonstrated that each of us has the power to care for the earth. We are the problem, but we are also the solution.





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Nonpoint Water Pollution

What Each of Us Can Do

Landscape with native plants, which require less water, fertilizer, and pesticides.

Select porous materials such as gravel for walkways and driveways to increase infiltration and decrease surface runoff.

Direct roof runoff into flower beds or other vegetated areas rather than paved areas.

Spread mulch on bare ground and replant bare patches to prevent erosion and runoff.

Test your soil before applying fertilizers to achieve proper application levels and minimize nutrients leaching into groundwater or running off into surface waters.

If you use a professional lawn care service, select a company that follows practices designed to apply fertilizers and pesticides sparingly and properly.

Wash your car only when necessary, and use a bucket to save water.

Keep fertilizer off paved areas, including driveways and sidewalks, to help prevent rainwater from washing the nutrients into the street and storm drains.

Encourage awareness of nonpoint pollution among your family members, friends, and co-workers.

l Forum on Nonpoint Source Pollution. The challenge to the Forum, ion Fund in 1994-1995, was to identify and demonstrate innovative, education, voluntary initiatives, and economic incentives.

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	The Seaver Institute
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	U.S. Department of Agriculture
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ising	Milk Marketing Inc.
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erative	Terrene Institute
ising	U.S. Geological Survey
men	Union Pacific Railroad
	Valmont Industries
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